FIG. 1
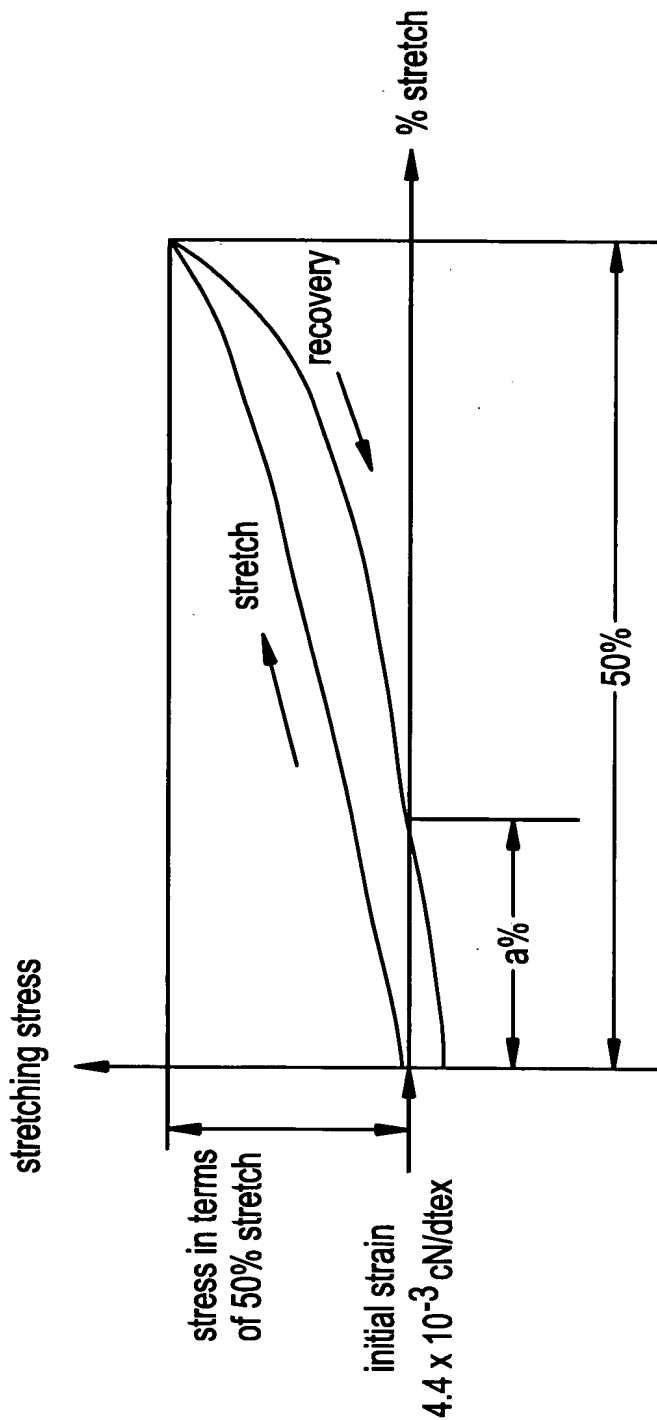
Stress-strain hysteresis curve diagram

REPLACEMENT SHEETS

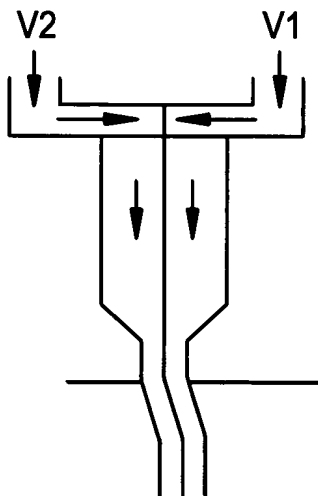# FIG. 2A

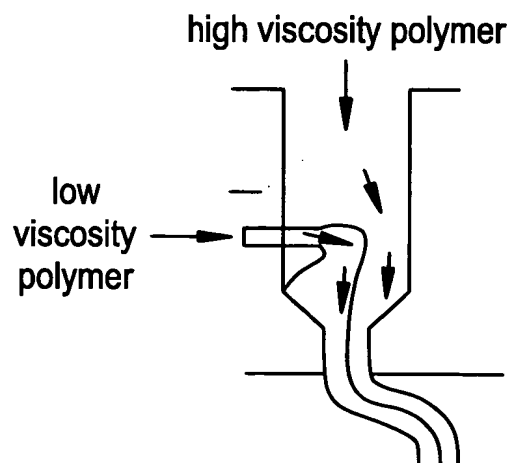V2   V1

FIG. 2B

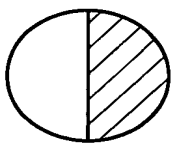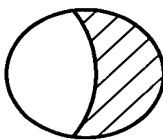high viscosity polymer

low
viscosity →
polymer

FIG. 3A

FIG. 3B

FIG. 3C

FIG. 3D
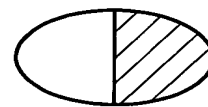
FIG. 3E
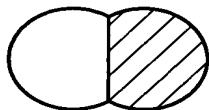
FIG. 3F
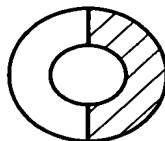
FIG. 3G

FIG. 3H

FIG. 3I

FIG. 3J

REPLACEMENTS SHEETS

FIG. 4

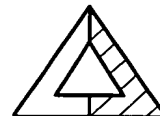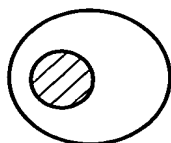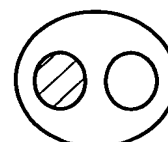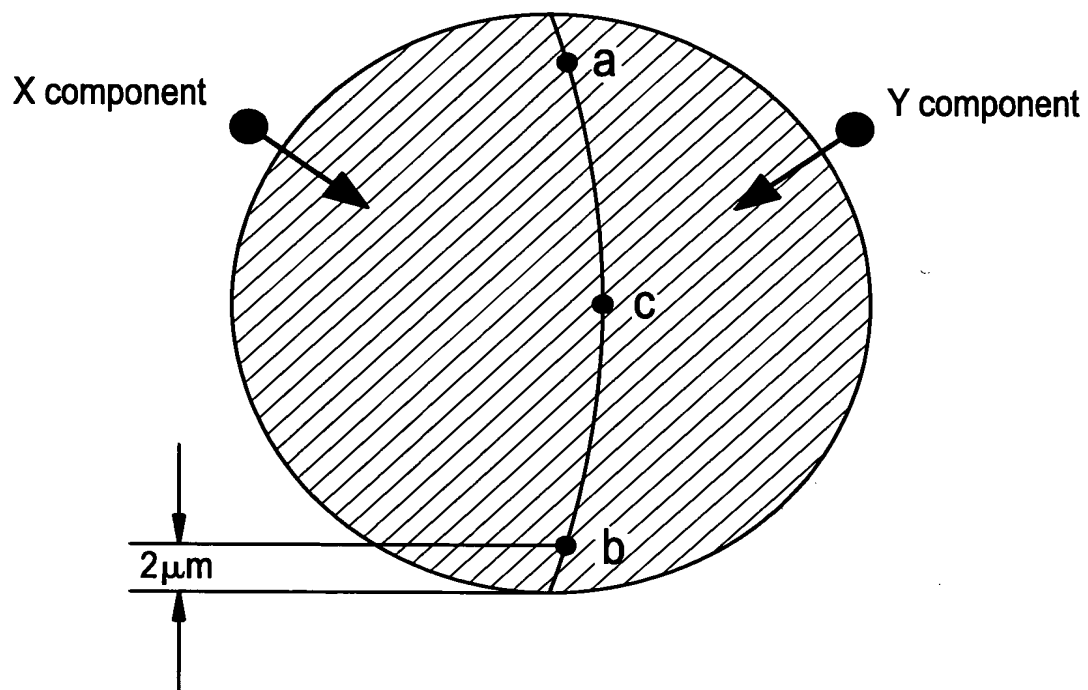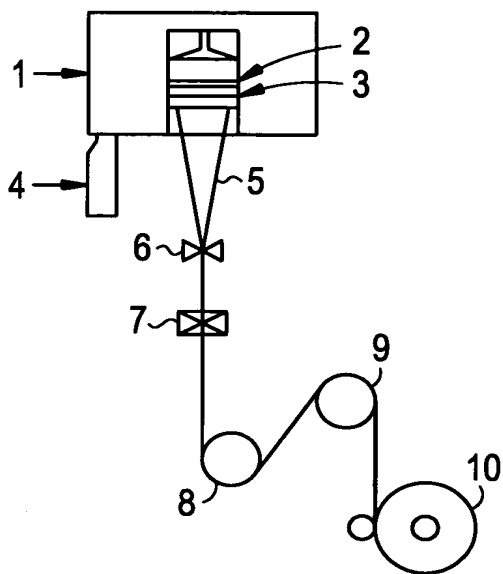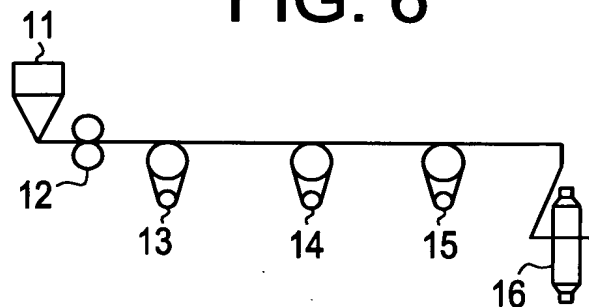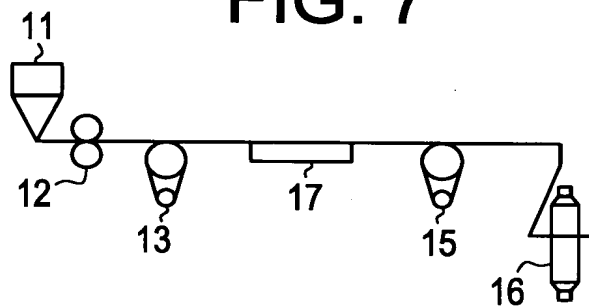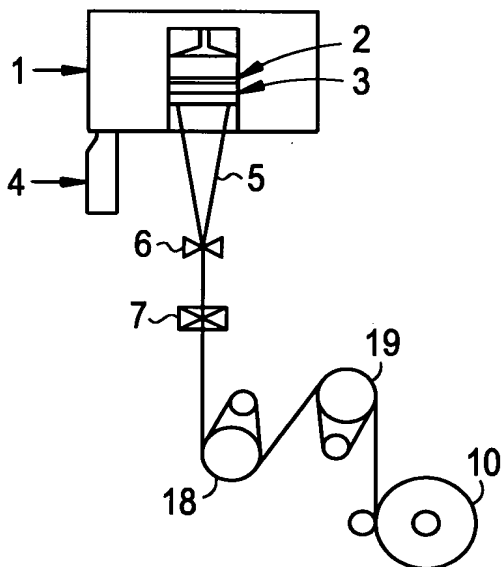REPLACEMENT SHEETS

FIG. 5

FIG. 6

FIG. 7

FIG. 8

FIG. 9

FIG. 10

heat treatment

treatment load

$L1$

$L2$

load for crimp measurement
0.9×10^{-3} cN/dtex

dimensional change
due to crimp;
measured after 5mins

load for fixed length measurement
180×10^{-3} cN/dtex
measured after 30 secs
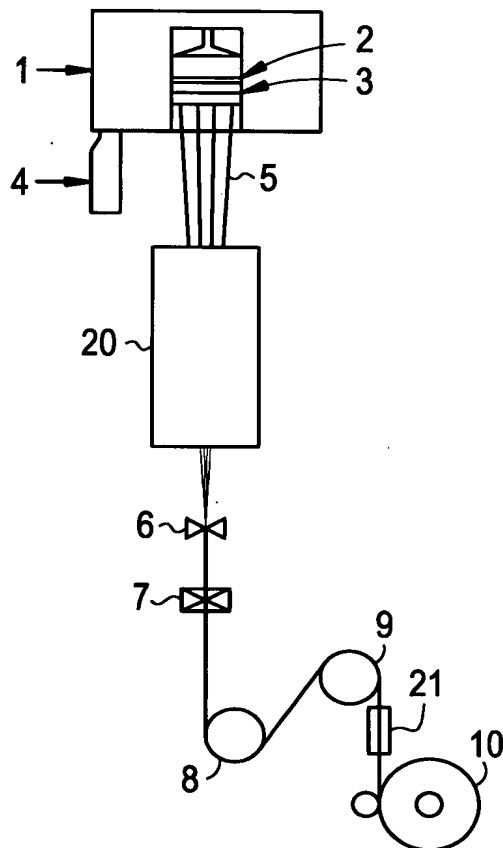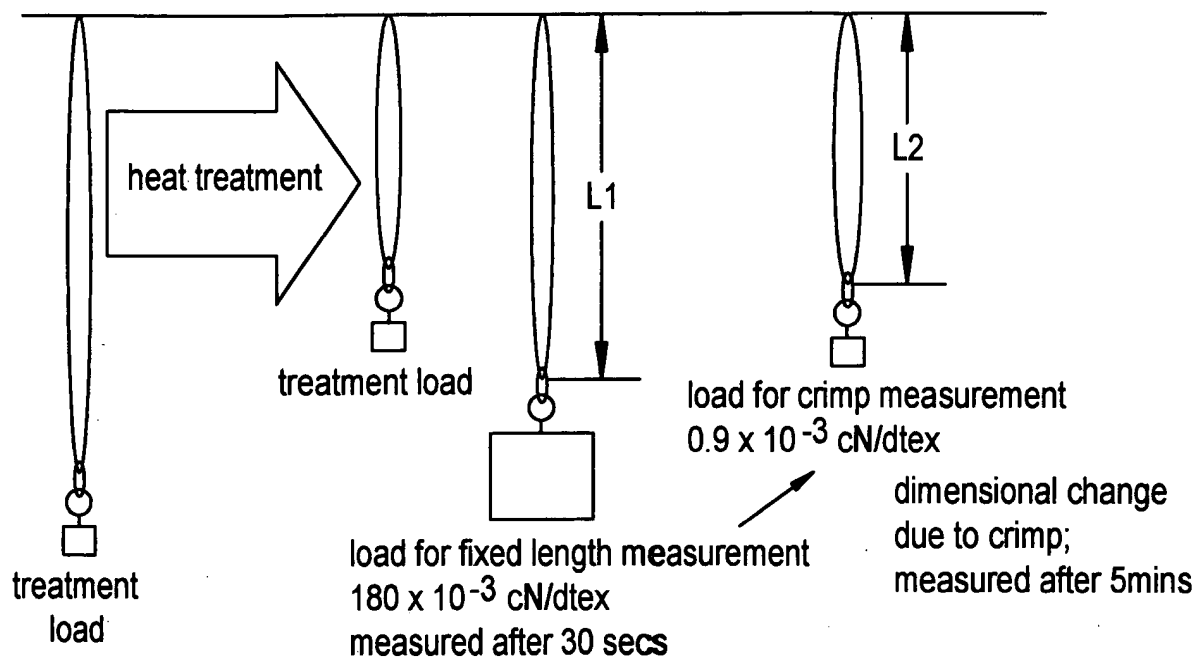
treatment
load

crimp stretch factor (%) = $(L_1 - L_2) / L_1 \times 100$(%)

heat treatment: 15 mins in boiling water +
              15 mins dry heat at 180°C

FIG. 11